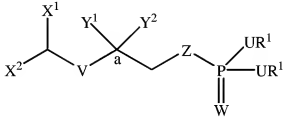
LISTING OF CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Original) A compound having the formula I



I

wherein

X^1, X^2, Y^1, and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} alkyl group, OR^2, $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1, CH_2, CHF, CF_2, or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate, and

wherein when V is not present, W is oxygen, X^1 and Y^1 are hydrogen, and X^2 is hydroxyl, then Y^2 is not hydroxyl.

2. (Original) The compound of claim 1, wherein each U and W comprises oxygen and V is not present.

3. (Original) The compound of claim 2, wherein Z comprises oxygen, X^1 comprises hydrogen, and X^2 comprises fluorine.

4. (Original) The compound of claim 3, wherein Y^1 comprises hydrogen, Y^2 comprises $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, and R^1 comprises hydrogen.

5. (Canceled)

6. (Original) The compound of claim 2, wherein Z comprises oxygen, Y^1 comprises hydrogen, and Y^2 comprises fluorine.

7. (Original) The compound of claim 6, wherein X^1 comprises hydrogen, X^2 comprises $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, and each R^1 comprises hydrogen.

8. (Original) The compound of claim 2, wherein Z comprises CHF, Y^1 comprises hydrogen, and Y^2 comprises a hydroxyl group.

9. (Original) The compound of claim 8, wherein X^1 comprises hydrogen, X^2 comprises $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, and each R^1 is hydrogen.

10. (Canceled)

11. (Original) The compound of claim 8, wherein X^1 comprises hydrogen, X^2 is $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, and each R^1 comprises ethyl.

12. (Canceled)

13. (Original) The compound of claim 2, wherein Z comprises CHF, Y^1 comprises hydrogen, and Y^2 comprises an alkyl group.
14. (Original) The compound of claim 13, wherein X^1 comprises hydrogen, X^2 comprises a silyl group, a hydroxyl group, or $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, and each R^1 comprises ethyl or each R^1 comprises hydrogen.
15. (Original) The compound of claim 2, wherein Z comprises CHF, Y^1 comprises hydrogen, and Y^2 comprises an $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group.
16. (Canceled)
17. (Original) The compound of claim 2, wherein Z comprises CF_2.
18. (Original) The compound of claim 17, wherein Y^1 comprises hydrogen, Y^2 comprises $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, and each R^1 comprises an ethyl group or a sodium ion.
19. (Original) The compound of claim 18, wherein X^1 comprises hydrogen and X^2 comprises OH or $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group.
20. (Original) The compound of claim 17, wherein X^1 comprises hydrogen, X^2 is $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, and each R^1 comprises an ethyl group or a sodium ion.
21. (Original) The compound of claim 20, wherein Y^1 comprises hydrogen and Y^2 comprises OH or $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group.
22. (Original) The compound of claim 2, wherein Z comprises CH_2.
23. (Original) The compound of claim 22, wherein X^1 and X^2 comprise fluorine.
24. (Original) The compound of claim 23, wherein Y^1 comprises hydrogen, and Y^2 comprises a hydroxyl group, OR^2, or $OC(O)R^3$.
25. (Original) The compound of claim 24, wherein each R^1 comprises hydrogen or a methyl group.

26. (Canceled)

27. (Canceled)

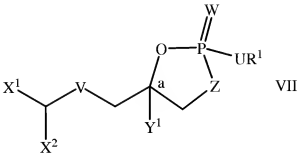
28. (Canceled)

29. (Canceled)

30. (Canceled)

31. (Canceled)

32. (Original) A compound having the formula VII



VII

wherein

X^1, X^2, and Y^1 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} alkyl group, OR^2, $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

U comprises oxygen, sulfur, or NR^1;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1, CH_2, CHF, CF_2, or $CHOR^2$;

each R^1 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, or a cationic counterion;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group;

or the pharmaceutically acceptable salt or ester thereof,

wherein the stereochemistry at carbon a is either substantially R or substantially S, wherein when W is oxygen, V is not present, X^1 and Y^1 are hydrogen, and X^2 is $OC(O)R^3$, then Z is not CH_2 or oxygen.

33. (Original) The compound of claim 32, wherein Y^1 comprises hydrogen and Z comprises CHF, CF_2, or CH_2.

34. (Original) The compound of claim 33, wherein Z comprises CHF, each U comprises oxygen, and W comprises oxygen.

35. (Original) The compound of claim 34, wherein V is not present and R^1 comprises hydrogen or a branched or straight chain C_1 to C_{25} alkyl group.

36. (Original) The compound of claim 35, wherein X^1 comprises hydrogen and X^2 comprises OH or $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group.

37. (Canceled)

38. (Original) The compound of claim 32, wherein Z comprises CF_2, each U comprises oxygen, and W comprises oxygen.

39. (Original) The compound of claim 38, wherein V is not present and R^1 comprises hydrogen or a branched or straight chain C_1 to C_{25} alkyl group.

40. (Original) The compound of claim 39, wherein X^1 comprises hydrogen and X^2 comprises OH or $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group.

41. (Canceled)

42. (Original) The compound of claim 32, wherein Z comprises CHF or CF_2, each U comprises oxygen, and W comprises oxygen.

43. (Original) The compound of claim 42, wherein V comprises oxygen and R^1 comprises hydrogen or a branched or straight chain C_1 to C_{25} alkyl group.

44. (Original) The compound of claim 43, wherein X^1 comprises hydrogen and X^2 comprises OH or $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group.

45. (Canceled)

46. (Original) The compound of claim 32, wherein Z comprises CH_2, each U comprises oxygen, and W comprises oxygen.

47. (Original) The compound of claim 46, wherein V is not present and R^1 comprises hydrogen or a branched or straight chain C_1 to C_{25} alkyl group.

48. (Original) The compound of claim 47, wherein X^1 comprises hydrogen and X^2 comprises OH or $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group.

49. (Canceled)

50. (Original) The compound of claim 46, wherein V comprises oxygen and R^1 comprises hydrogen or a branched or straight chain C_1 to C_{25} alkyl group.

51. (Original) The compound of claim 50, wherein X^1 comprises hydrogen and X^2 comprises a branched or straight chain C_1 to C_{25} alkyl group.

52. (Canceled)

53. (Original) The compound of claim 32, wherein Z comprises CH_2, each U comprises oxygen, and W comprises sulfur.

54. (Original) The compound of claim 53, wherein V is not present and R^1 comprises hydrogen or a branched or straight chain C_1 to C_{25} alkyl group.

55. (Original) The compound of claim 54, wherein X^1 comprises hydrogen and X^2 comprises OH or $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group.

56. (Canceled)

57. (Original) The compound of claim 32, wherein Z comprises sulfur, each U comprises oxygen, and W comprises oxygen.

58. (Original) The compound of claim 57, wherein V is not present and R^1 comprises hydrogen or a branched or straight chain C_1 to C_{25} alkyl group.

59. (Original) The compound of claim 58, wherein X^1 comprises hydrogen and X^2 comprises OH or $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group.

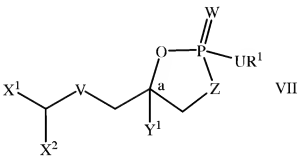
60. (Canceled)

61. (Original) The compound of claim 57, wherein V comprises oxygen and R^1 comprises hydrogen or a branched or straight chain C_1 to C_{25} alkyl group.

62. (Original) The compound of claim 61, wherein X^1 comprises hydrogen and X^2 comprises OH or $OC(O)R^3$, wherein R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group.

63. (Canceled)

64. (Original) A compound having the formula VII



VII

wherein

X^1, X^2, and Y^1 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} alkyl group, OR^2, $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

U comprises oxygen, sulfur, or NR^1;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises sulfur, NR^1, CHF, CF_2, or $CHOR^2$;

each R^1 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, or a cationic counterion;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group;

or the pharmaceutically acceptable salt or ester thereof,

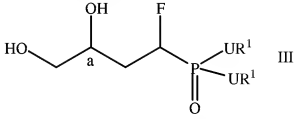
wherein the stereochemistry at carbon a is either substantially R or substantially S.

65. (Previouly Amended) The compound of claim 1, wherein the stereochemistry at carbon a is substantially R.

66. (Previously presented) The compound of claim 1, wherein the stereochemistry at carbon a is substantially S.

67. (Previously presented) A pharmaceutical composition comprising a pharmaceutically-acceptable compound and the compound of claim 1.

68. (Original) A method for preparing a compound having the formula III



III

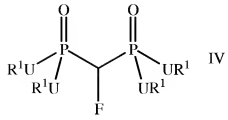
wherein each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group, and each U comprises, independently, oxygen, sulfur, or NR^1;and

the stereochemistry at carbon a is substantially R or substantially S,

or the pharmaceutically acceptable salt or ester thereof,

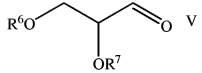
comprising

(a) reacting a compound having the formula IV



IV

with a compound having the formula V



V

wherein R^6 and R^7 are protecting groups,

in the presence of a base;

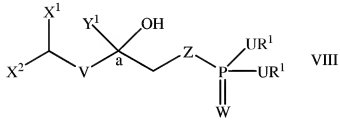
(b) hydrogenating the compound produced in step (a); and

(c) deprotecting the compound produced in step (b) to produce a compound having the formula II.

69. (Canceled)

70. (Canceled)

71. (Previously presented) A method for preparing the compound of claim 32, comprising reacting a compound having the formula VIII



VIII

wherein

X^1, X^2, and Y^1 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} alkyl group, OR^2, $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1, CH_2, CHF, CF_2, or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

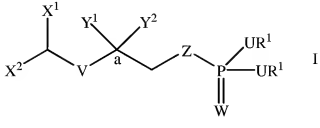
R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group;

or the pharmaceutically acceptable salt or ester thereof,

wherein the stereochemistry at carbon a is either substantially R or substantially S, with a dehydrating agent.

72. (Canceled)

73. (Original) A method for improving wound healing in a subject in need of such improvement, comprising contacting the wound of a mammal with a compound having the formula I or VII or a pharmaceutical composition thereof



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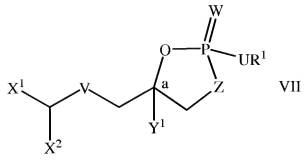


VII

wherein

X^1, X^2, Y^1, and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} alkyl group, OR^2, $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1, CH_2, CHF, CF_2, or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

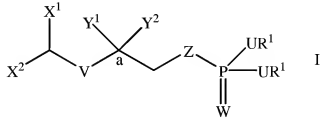
R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.

74. (Original) A method for treating or preventing in a subject a disease comprising administering to the subject a compound having the formula I or VII or a pharmaceutical composition thereof



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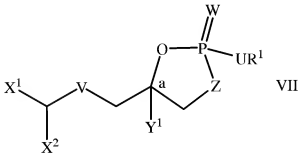


VII

wherein

X^1, X^2, Y^1, and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} alkyl group, OR^2, $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1, CH_2, CHF, CF_2, or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S,

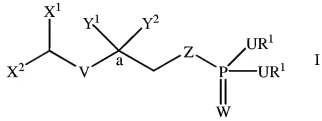
wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate, and

wherein with formula VII, when W is oxygen, V is not present, X^1 and Y^1 are hydrogen, and X^2 is $OC(O)R^3$, then Z is not CH_2 or oxygen.

75. (Original) The method of claim 74, wherein the disease comprises cancer or diabetes.

76. (Canceled)

77. (Original) A method for reducing inflammation or an allergic response in a subject comprising administering to the subject a compound having the formula I or VII or a pharmaceutical composition thereof



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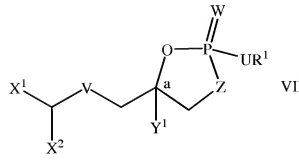


VII

wherein

X^1, X^2, Y^1, and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} alkyl group, OR^2, $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1, CH_2, CHF, CF_2, or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

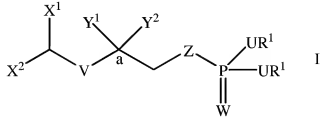
R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.

78. (Original) A method for increasing or altering cardiovascular function in a subject comprising administering to the subject a compound having the formula I or VII or a pharmaceutical composition thereof



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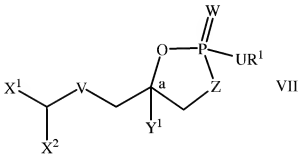


VII

wherein

X^1, X^2, Y^1, and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} alkyl group, OR^2, $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1, CH_2, CHF, CF_2, or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

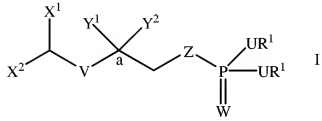
R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.

79. (Original) A method for maintaining or terminating embryonic development in a subject comprising administering to the subject a compound having the formula I or VII or a pharmaceutical composition thereof



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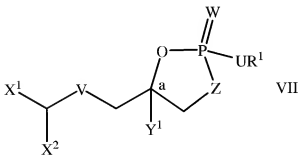


VII

wherein

X^1, X^2, Y^1, and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} alkyl group, OR^2, $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1, CH_2, CHF, CF_2, or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

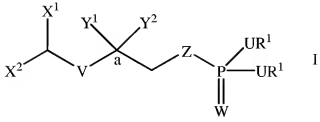
R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.

80. (Original) A method for eliciting or inhibiting platelet aggregation in a subject comprising administering to the subject a compound having the formula I or VII or a pharmaceutical composition thereof



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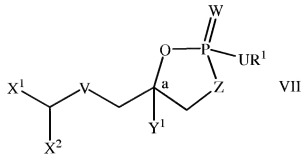


VII

wherein

X^1, X^2, Y^1, and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} alkyl group, OR^2, $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1, CH_2, CHF, CF_2, or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

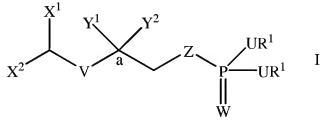
R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.

81. (Original) A method for increasing or inhibiting cell growth and proliferation in a culture comprising contacting the cells in the culture with a compound having the formula I or VII or a pharmaceutical composition thereof



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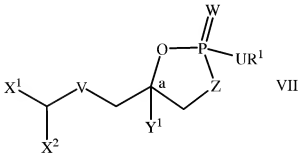


VII

wherein

X^1, X^2, Y^1, and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} alkyl group, OR^2, $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1, CH_2, CHF, CF_2, or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

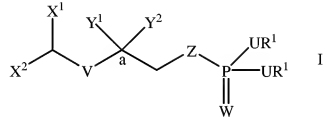
R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.

82. (Original) A method of treating or preventing a disease in a subject comprising administering a compound having the formula I or VII or a pharmaceutical composition thereof as a PPARγ agonist



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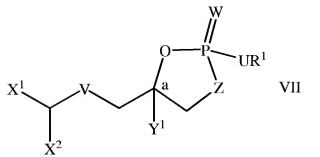


VII

wherein

X^1, X^2, Y^1, and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} alkyl group, OR^2, $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1, CH_2, CHF, CF_2, or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

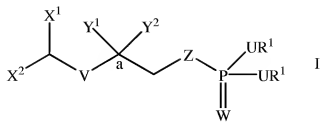
R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.

83. (Original) A method of treating or preventing a disease in a subject comprising administering a compound having the formula I or VII or a pharmaceutical composition thereof to inhibit a lipid phosphatase, lipid kinase, or phospholipase enzyme



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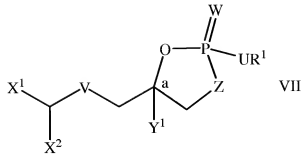


VII

wherein

X^1, X^2, Y^1, and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} alkyl group, OR^2, $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1, CH_2, CHF, CF_2, or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

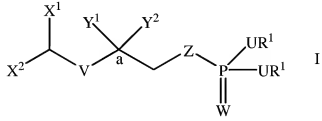
R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.

84. (Original) The use of a compound having the formula I or VII or a pharmaceutical composition thereof for targeting the discovery of a drug



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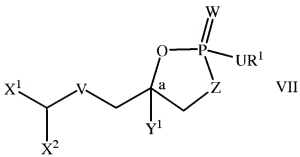


VII

wherein

X^1, X^2, Y^1, and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} alkyl group, OR^2, $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1, CH_2, CHF, CF_2, or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

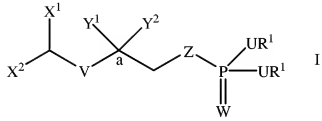
R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.

85. (Original) A method for growing or proliferating cells in a culture comprising administering to the cells in the culture a compound having the formula I or VII or a pharmaceutical composition thereof



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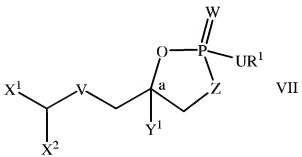


VII

wherein

X^1, X^2, Y^1, and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} alkyl group, OR^2, $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1, CH_2, CHF, CF_2, or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

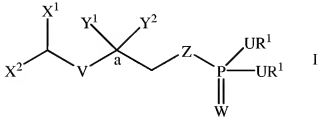
or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.

86. (Original) A method for determining the activity of lysophosphatidic acid or phosphatidic acid, comprising the steps of:

a) measuring the activity of a compound having the formula I or VII



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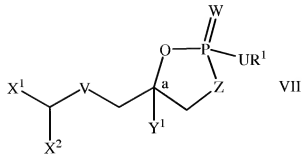

VII

wherein

X^1, X^2, Y^1, and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} alkyl group, OR^2, $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1, CH_2, CHF, CF_2, or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

R^3 comprises a branched or straight chain C_1 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate; and

b) measuring the same activity of lysophosphatidic acid or phosphatidic acid.

87. (Original) The method of claim 86, wherein the method comprises identifying agonists or antagonists of lysophosphatidic acid binding to or activating lysophosphatidic acid receptors of the edg class in a cell.

88. (Original) The method of claim 86, wherein the method comprises identifying agonists or antagonists of lysophosphatidic acid binding to or activating lysophosphatidic acid receptors of the non-edg class in a cell.